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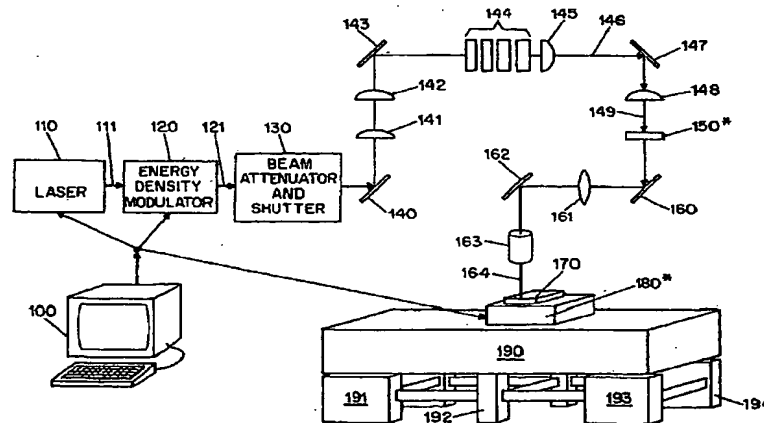
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(54) Title: PROCESS AND SYSTEM FOR LASER CRYSTALLIZATION PROCESSING OF FILM REGIONS ON A SUBSTRATE TO MINIMIZE EDGE AREAS, AND STRUCTURE OF SUCH FILM REGIONS



(57) Abstract: A process and system for processing a thin film sample (170) are provided. In particular, a beam generator (110) can be controlled to emit at least one beam pulse (111). The beam pulse (111) is then masked to produce at least one masked beam pulse (164), which is used to irradiate at least one portion (510) of the thin film sample (170). With the at least one masked beam pulse (164), the portion (510) of the film sample (170) is irradiated with sufficient intensity for such portion to later crystallize. This portion (510) of the film sample (170) is allowed to crystallize so as to be composed of a first area (518) and a second area (515). Upon the crystallization thereof, the first area (518) includes a first set of grains, and the second area (515) includes a second set of grains whose at least one characteristic is different from at least one characteristic of the second set of grains. The first area (518) surrounds the second area (515), and is configured to allow an active region (618) of a thin-film transistor (TFT) (610) to be provided at a distance therefrom.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/25954

A. CLASSIFICATION OF SUBJECT MATTER IPC(7) : H01L 21/20, 21/36, 29/04 US CL : 438/487,482,486,488,481,166; 257/66,69,70,75 According to International Patent Classification (IPC) or to both national classification and IPC														
B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) U.S. : 438/487,482,486,488,481,166; 257/66,69,70,75 Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched NONE Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) EAST search terms: thin film sample, mask pattern, crystallize, grains, TFT														
C. DOCUMENTS CONSIDERED TO BE RELEVANT <table border="1"> <thead> <tr> <th>Category *</th> <th>Citation of document, with indication, where appropriate, of the relevant passages</th> <th>Relevant to claim No.</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>US 4,309,225 A (FAN et al.) 05 January 1982 (05.01.1982), see entire document.</td> <td>1-33</td> </tr> <tr> <td>A</td> <td>US 6,169,014 B1 (MCCULLOCH) 02 January 2001 (02.01.2001), see entire document.</td> <td>1-33</td> </tr> <tr> <td>A</td> <td>US 5,591,668 A (MAEGAWA et al.) 07 January 1997 (07.01.1997), see entire document.</td> <td>1-33</td> </tr> </tbody> </table>			Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.	A	US 4,309,225 A (FAN et al.) 05 January 1982 (05.01.1982), see entire document.	1-33	A	US 6,169,014 B1 (MCCULLOCH) 02 January 2001 (02.01.2001), see entire document.	1-33	A	US 5,591,668 A (MAEGAWA et al.) 07 January 1997 (07.01.1997), see entire document.	1-33
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<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/> See patent family annex.														
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Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703) 305-3230		Authorized officer Minhloan T. Tran Telephone No. 703-308-4919												